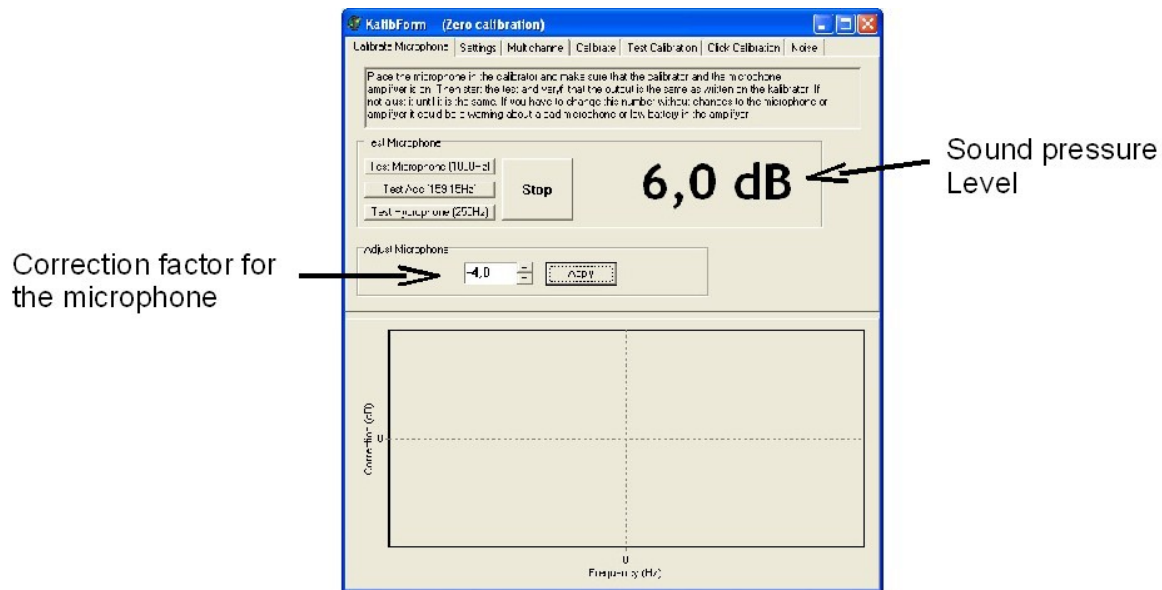# Calibration.

[Settings]>[Calibration] opens the calibration form. The calibration form consists of 7 tabs that you should go trough from left to right for a full calibration.

To calibrate the system you need a high quality microphone with a flat response in the frequency range you are interested in and a calibrator for the microphone.

Connect the microphone to the system, usually to IN-2 on the system handling the sound. Turn on the microphone and eventual amplifiers and let them stabilize for a minute or two.

Calibrate Microphone

Then select the first tab on the calibration form [Calibrate Microphone] and click on [Test Microphone (1000Hz)]. This assumes that your calibrator works at 1000Hz.
Now the program should show the constantly updating sound pressure, clap your hands or talk loudly to make sure that it changes with the sound level.
Then place the calibrator on the microphone and turn it on, the sound level should now be significantly higher.
Now you have to adjust the system to make it show the correct sound pressure. First find the output level of the calibrator, this is usually 94dB (re 20µPa) but it should be written on the calibrator. Use the adjust microphone value to correct the number shown until it shows the correct value.

If the value is constantly increasing or decreasing it indicates that the amplifier needs more time to stabilize or it is running out of battery. This should be corrected before going on to the next tab.

Settings

On this tab you choose the frequency range to calibrate.
Start frequency is the lowest frequency you plan to test, Stop frequency is the higest frequency you plan to test. Step size1 is the step size in the first part of the calibration. Change frequency is the

frequency where the calibration starts to use step size2.

Example: If start and stop frequency is 100 and 2000Hz and step size 1 and 2 is 100 and 200 with a change frequency of 1000 Hz. Then the system will calibrate at 100Hz, 200Hz...1000Hz, 1200Hz, 1400Hz...2000Hz.

If you set change frequency to the stop frequency or higher the system will only use step size 1.

Calibration level is the sound pressure level that the system tries to reach during the calibration. This should be as high as possible without overloading the system. For a good loudspeaker 80dB should be possible (depending on the frequency range).

Multichannel

This allows you to calibrate 16 loudspeakers in one session if you have a TDT multiplexer. In normal use you should not change anything here.

Calibrate

Here you can start the final calibration. You can see the calibration file as it is generated in the text window. You can also see a visual representation of the calibration on the graph in the bottom of the window. After the calibration you will get a list of frequencies where the calibration failed. This is usually caused by setting a too high calibration level in the previous tab.

(Remember to save the file when you are done)

Test Calibration

Here you can test your calibration file.
First load you calibration file, then set the amplitude and frequency. When you then press start the system will play the sound using the loaded calibration file.

It can be a very good idea to check a couple of values to make sure that the calibration is correct. Normally there will be a few dB's variation, but how much depends on the quality of the loudspeaker and microphone.

Click Calibration

Here you can set the default level of the click used to get the ABR measurement. There is at this time no automatic mode of Click calibration, but you can test the click by using the test button.

Noise

The noise measurement is a calibration that measures the background noise instead of the signal generated by the system. It can be useful if you want measure at low sound pressures.